Taxonomic study of the genus *Dolichocoxys* Townsend (Diptera: Tachinidae) in China, with description of one new species

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Abstract: The genus *Dolichocoxys* Townsend, 1927 (Diptera: Tachinidae) in China is reviewed and *D. unisetus* sp. nov. is described as new. Figures of head and terminalia, ecological images of adults, a key to all known species are provided.

Key words: Calyptrae; Exoristinae; Blondelini; key; taxonomy

中国长腹寄蝇属分类研究及一新种记述（双翅目：寄蝇科）

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摘要：研究了中国长腹寄蝇属（双翅目：寄蝇科），并记述该属 1 新种：单鬃长腹寄蝇 *Dolichocoxys unisetus* sp. nov.，提供了新种的雄性头部、尾器特征图以及生态照片，编制了该属分种检索表。

关键词：有瓣蝇类；追寄蝇亚科；卷蛾寄蝇族；检索表；分类

Introduction

The genus *Dolichocoxys* was erected by Townsend in 1927, with *D. femoralis* as the type. *Dolichocoxys* was placed in the Blondeliini by Mesnil (1960). However, Crosskey (1976) assigned it to the tribe Minthoini. Herting (1984), Herting & Dely-Draskovits (1993) treated it as a genus of the tribe Blondeliini, which is widely accepted. Six species of the genus are known and occur in Oriental China, Indonesia and the Palearctic Russian Far East (Crosskey 1976; Herting 1984; Herting & Dely-Draskovits 1993; Zhang *et al*. 2008; Zhou *et al*. 2012) and four species were recognized in Guizhou, Xizang and Yunnan in SW China. Here one new species of *Dolichocoxys* from Guizhou is found and described, and a key to all species is provided.

Material and methods

Terminology for morphology and measurements follow Tschorsnig & Richter (1998). Terms for structures of the male terminalia follow Sinclair (2000) and those for other

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①Corresponding author, E-mail: chuntianzhang@aliyun.com structures follow McAlpine (1981). Images of adults were taken using a HM NOTE 1S digital camera. Drawings were done using a Motic SMZ-168-BL microscope equipped with an ocular micrometer.

The specimens examined are deposited in the Insect Collection of Shenyang Normal University, Liaoning, China (SYNU).

Taxonomy

Genus *Dolichocoxys* Townsend, 1927

Dolichocoxys Townsend, 1927: 57. Type species: *Dolichocoxys femoralis* Townsend, 1927, by original designation.

Diagnosis. *Dolichocoxys* can be distinguished from other closely-related genera by the following character combinations: male abdomen with a slender tail-like apex formed by prolongation of tergite 5 (Fig. 1), terminalia entirely or predominantly concealed between margins of tergite 5; middorsal excavation of syntergite 1+2 not extending back hind margin. Parafacial bare; proepisternum setose, presutural scutum with a pair of broad dark longitudinal stripes; 2 presutural and 2(3) postsutural dorsocentral setae, presutural intra-alar seta absent; scutellum with two pairs of marginal setae, apical scutellar setae absent or hair-like; postmetacoxal area sclerotized. Wing cell r_{4+5} open. Fore tibia preapical anterodorsal seta absent. Female fore tarsi enlarged and distinctly flattened laterally (Fig. 2).

Key to species

1. Scape, pedicel, arista and tibia yellow ······ *D. rossica*
-. Scape, pedicel, arista and tibia brown to black ······ 2
2. Presutural acrostichal seta 1, postsutural intra-alar seta 1 ······ 3
-. Presutural acrostichal setae 2, postsutural intra-alar setae 2 or 3 ······ 5
3. Genal height about 0.25 of eye height ······ *D. femoralis*
-. Genal height less than 0.15 of eye height ······ 4
4. Katepisternal seta 1; palpus yellow; tergite 2 with 2 median marginal and a pair of lateral marginal setae ······ *D. unisetus* **sp. nov.**
-. Katepisternal setae 2; palpus black; tergite 2 with a complete row of marginal setae ······ *D. wangi*
5. Postsutural intra-alar setae 2 ······ *D. brevis*
-. Postsutural intra-alar setae 3 ······ 6
6. Tergite 3 with two lateral yellow spots at base ······ *D. flavibasis*
-. Tergite 3 without any spots ······ *D. obscurus*

1. *Dolichocoxys brevis* Zhou, Wei & Luo, 2012

Dolichocoxys brevis Zhou, Wei & Luo, 2012: 336. [Holotype. ♂, Duanqiao (25°53.5'N, 105°38.4'E), 600 m, Guanling County, Guizhou, China, deposited in Centre for Disease Prevention and Control of Anshun City, Guizhou, China (CDPCAG)].

Distribution. China (Guizhou).

2. *Dolichocoxys femoralis* Townsend, 1927

Dolichocoxys femoralis Townsend, 1927: 57. [Holotype. ♂, Tanjung Gadang, 1200 m, Sumatra, Indonesia, deposited in Zoologisch Museum, Amsterdam, Netherlands (ZMAN)].

Diagnosis. Gena height about 0.25 of eye height; the arista longer than flagellomere 1; one presutural acrostichal seta, one postsutural intra-alar seta; fore coxa longer than fore femur, tibiae brown and the tarsi black; tergite 4 with 2 median marginal setae.

Distribution. Indonesia.

3. ***Dolichocoxys flavibasis*** **Zhou, Wei & Luo, 2012**

Dolichocoxys flavibasis Zhou, Wei & Luo, 2012: 333. [Holotype. ♂, Laogaocun (25°41.94'N, 105°36.1'E), 700 m, Guanling County, Guizhou, China, deposited in CDPCAG].

Distribution. China (Guizhou).

4. ***Dolichocoxys obscurus*** **Zhou, Wei & Luo, 2012**

Dolichocoxys obscurus Zhou, Wei & Luo, 2012: 331. [Holotype. ♂, Laogaocun (25°41.94'N, 105°36.1'E), 700 m, Guanling County, Guizhou, China, deposited in CDPCAG].

Distribution. China (Guizhou).

5. ***Dolichocoxys rossica*** **Mesnil, 1963**

Dolichocoxys rossica Mesnil, 1963: 43. [Holotype. ♂, between r. Pera and r. Ergel (Amur, Far East), Russia, deposited in Zoological Institute, Academy of Sciences, Leningrad (St. Petersburg), Russia (ZRAS)].

Diagnosis. Scape, pedicel and arista of antenna and palpus yellow; 2 presutural and 2 postsutural dorsocentral setae, 1 postsutural intra-alar seta, proepisternum hairy; relative length of 2nd and 3rd costal sections approximately as 1 : 4; tibiae and tarsi black.

Distribution. Russia.

6. ***Dolichocoxys wangi*** **Zhang & Liu, 2008**

Dolichocoxys wangi Zhang & Liu, 2008: 532. [Holotype. ♂, Mêdog (29°50'N 95°45'E), 1300 m, Xizang, China, deposited in Shenyang Normal University, Liaoning, China (SYNU)].

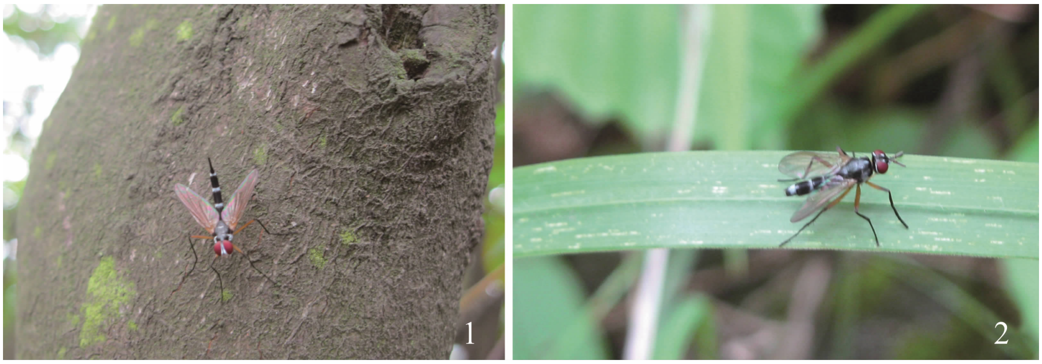
Distribution. China (Xizang, Yunnan).

7. ***Dolichocoxys unisetus*** **Zhi, Liu & Zhang sp. nov.** (Figs. 1–7)

Description. Male. Body length 11.0–13.0 mm.

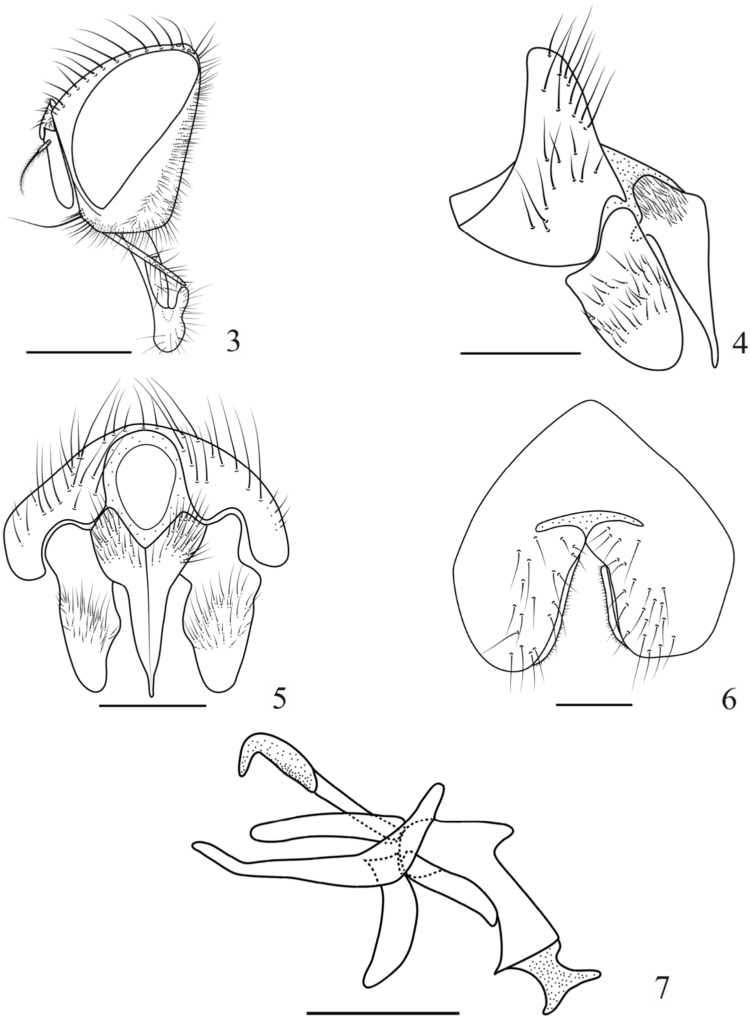
Coloration. Head and occiput blackish in ground color, frontal vitta black; fronto-orbital plate, face, parafacial and gena densely covered with silver white pruinosity. Antenna mostly black, pedicel and flagellomere 1 basally dark brown, arista yellowish brown; palpus yellow; prementum yellowish brown; labella pale yellow. Thorax black in ground color, scutum, anepisternum and katepisternum, anatergite, katatergite and meron covered with thin silver white pruinosity. Presutural scutum with two broad black longitudinal stripes, the stripe 1.2–1.7 times as wide as the pruinose portion between two stripes. Anterior and posterior thoracic spiracles black. Wing hyaline, dark yellow throughout; tegula black and basicosta dark brown; veins dark brown. Halter pale yellow. Calypter hyaline, pale yellow. Femora except dark apex and coxae reddish yellow, tibiae, tarsi and claws black, pulvilli dark brown. Abdomen brownish black to black in ground color, covered with grayish white pruinosity on basal 1/6–1/5 of tergites 3 and 4, and anterior 1/8–1/7 of tergite 5.

Head (Fig. 3). Eye bare. Vertex at narrowest point 0.10−0.12 of head width; frontal vitta linear at narrowest point; fronto-orbital plate bare; parafacial bare, narrowed anteriorly, about half as wide as flagellomere 1 at middle; facial carina undeveloped; lower margin of face not protruding forward in lateral view; gena height slightly more than flagellomere 1 width and about 0.14 of eye height; occiput flattened, with a row of black hairs behind postocular setae. Inner vertical setae thin, subparallel to each other, 0.21–0.28 as long as eye height; outer vertical seta hair-like, slightly shorter than inner vertical seta; ocellar setae slender, proclinate, nearly as long as inner vertical setae; 11–14 pairs of inclinate frontal setae, 0.18–0.38 as long as eye height, lowest frontal seta slightly lower than the base of antenna; vibrissa developed, 0.80–0.85 as long as antenna, arising at level of lower facial margin; facial ridge with 2–4 setae above vibrissa and 3–4 subvibrissa. Flagellomere 1 about 2.0–3.5 times as long as pedicel; arista pubescent, total width including plumosity 0.35–0.50 as wide as flagellomere 1, about 0.80 of flagellomere 1 in length, pedicel with more than ten setulae and a strong seta, the latter nearly as long as pedicel; palpus slender, 0.70–0.80 as long as flagellomere 1; prementum 2.0–2.5 times as long as wide.



Figures 1, 2. Ecological photos of *Dolichocoxys unisetus* sp. nov. 1. Male; 2. Female.

Thorax. Prosternum bare, 3.0–3.5 times as long as wide; 1 presutural acrostichal seta sometimes hair-like and postsutural acrostichal seta absent; 2 presutural and 2 postsutural dorsocentral setae (widely separated), the anterior one weak, 0.50–0.60 as long as the posterior one; 1 postsutural intra-alar seta and prealar seta absent; 1 strong supra-alar seta; 2 setae on postpronotal lobe, the outer one about 0.50 as long as the inner one; proepisternum hairy; 5–8 anepisternal setae; anepimeron with 3 strong setae and several seta-like hairs; katepimeron bare; 1 katepisternal seta posteriorly; scutellum with a pair of strong basal scutellar setae, a pair of well-developed subapical scutellar setae, two apical setae hair-like and separated. Wing length 5.5–7.0 mm, costal spine indistinct. Relative lengths of 2nd, 3rd and 4th costal sections approximately 1.0 : 2.6 : 0.9; basal node of vein R_{4+5} bare; bend of vein M rather obtuse, vein M from dm-cu crossvein to its bend about 1.5 times that from bend to apex of M, about 5.3 times as long as distance between bend and wing posterior margin; cell r_{4+5} narrowly opened at apex. Lower calypter with short fringe on outer margin. Legs elongate, claws and pulvilli about equal in length to fifth tarsomere. Tarsomere 1 of fore leg about as long as head height. Fore coxa about 3/4 of its femur in length. Fore tibia with 1 posterior seta, apex with 1 dorsal and 1 posteroventral setae; mid tibia with 2 posterior setae, apex with 1 dorsal, 1 anteroventral and 1 posteroventral setae; hind tibia with 1 anterodorsal and 1 posterodorsal setae, apex with 1 posteroventral and 1 dorsal setae.



Figures 3–7. *Dolichocoxys unisetus* sp. nov. Head and male terminalia 3. Male head, profile view; 4. Epandrium, cerci and surstylus, lateral view; 5. Epandrium, cerci and surstylus, caudal view; 6. Sternite 5; 7. Hypandrium, pregonite, postgonite and phallus, lateral view. Scale bars = 1 mm (Fig. 3); 0.2 mm (Figs. 4–7).

Abdomen. Long cylindrical, 3.3–3.8 times as long as thorax, with a slender tail-like apex formed by prolongation of tergite 5. Abdominal syntergite 1+2 excavated at basal 1/6 dorsally; tergite 2 with 2 median marginal and a pair of lateral marginal setae; tergite 3 with a pair of lateral discal setae, 2 median marginal setae and a pair of lateral marginal setae; tergite 4 with a pair of lateral discal setae and a row of marginal setae; tergite 5 with three pairs of lateral setae. Sternite 5 subtriangular at basal 1/2, V-shaped median cleft deep, lateral lobe blunt and wide, apex rounded, inner margin with fine hairs. Male terminalia (Figs. 4–7). Epandrium with slight bulge laterally on lower portion. Surstylus very broad, straight, apex rounded and slightly shorter than cerci in lateral view, and with dense setae at middle 1/3, bluntly protruding inward at middle and rounded at apex in caudal view; cercus with dense setae at base 2/7, apex pointed and inward ventrally in lateral view, rather broad at basal 1/3 and narrowed on apical 2/3, a dorsal medial suture fused apically in caudal view. Pregonite arcuated and tapered to a round tip; postgonite not fused with pregonite and pointed apically in lateral view. Apical portion of distiphallus membranous.

Female. Body length 7.5–9.5 mm. Occiput slightly convex. Vertex at narrowest point about 0.22 of head width; frontal vitta 0.20 as wide as fronto-orbital plate at narrowest point, fronto-orbital plate with two pruinose areas on 1/5 near the antenna and the middle part respectively. Inner vertical seta strong, 0.46–0.50 of eye height; ocellar seta 0.30–0.34 of inner vertical seta in length, 2 proclinate and 1 reclinate orbital setae; 6–8 pairs of inclinate frontal setae; vibrissa about 0.38 as long as antenna. Acrostichal seta absent, sometimes presutural acrostichal seta hair-like. Wing length 5.0–6.0 mm. Relative lengths of 2nd, 3rd and 4th costal sections approximately as 1.0 : 3.6 : 1.3. Claws and pulvilli shorter than 5th tarsomere. Abdomen compressed, about 1.9–2.0 times as long as thorax, covered with grayish white pruinosity on basal 1/4 of tergite 3 and tergite 4, and anterior 1/2 of tergite 5; tergite 3 sometimes with 2 median marginal setae.

Holotype. ♂, **China**, Guizhou, Guiyang, Mt. Qianling, 26°60′N, 106°69′E, alt. 810 m, 05-VI-2015, Yan ZHI, Jiayu LIU (SYNU). **Paratypes**. 6♂, same data as holotype; 1♀, 29-VI-2013; 1♂, 31-V-2014; 1♂, 01-VI-2014; 5♂, 04-VI-2014; 7♂2♀, 16-V-2015; 1♂, 31-V-2015; 2♀, 24-V-2015; 3♂, 13-VIII-2015, same collection area and collectors as holotype.

Etymology. This specific name is taken from a character of this species (one katepisternal seta), it is composed from the latin *uni* (one) plus the noun *setus* (seta).

Remarks. This new species is close to *D. wangi* Zhang & Liu distributed in Mêdog, Xizang in appearance, but it is distinguished from the latter in having yellow palpus, 1 katepisternal seta, tergite 2 with 2 median marginal and a pair of lateral marginal setae.

Ecology. The species were collected in fresh and cool, humid surroundings, and at daylight during dry and sunny weather; usually found under the shade of trees. The males generally perch on the trunk of *Quercus* sp. (Fagaceae) and *Ilex* sp. (Aquifoliaceae) (Fig. 1), while the females stay in the grass (Fig. 2).

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